UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,948	02/17/2004	Brig Barnum Elliott	03-4044	9353

25537 7590 04/15/2009
VERIZON
PATENT MANAGEMENT GROUP
1320 North Court House Road
9th Floor
ARLINGTON, VA 22201-2909

EXAMINER	
TAYLOR, BARRY W	

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
04/15/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@verizon.com

Office Action Summary	Application No.	Applicant(s)	
	10/779,948	ELLIOTT, BRIG BARNUM	
	Examiner	Art Unit	
	Barry W. Taylor	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 January 2009_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-23_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-23_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _17 February 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 14-15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sydon et al (2002/0085520 hereinafter Sydon) in view of Yuen et al (6,160,803 hereinafter Yuen).

Regarding claim 14. Sydon teaches a network comprising:

means for transmitting in the network the includes a plurality of nodes messages from more than one of the nodes using a plurality of modulation schemes (paragraph 0018, 0021, 0025); and

means for receiving in one of the nodes a plurality of the messages only during assigned timeslots schemes (paragraph 0018, 0021, 0025).

Sydon does not explicitly teach establishing a different time slot for each node for reception of messages. In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

However, Sydon does teach direct communication between **<u>two or more</u>** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 15. Computer claim 15 is rejected for the same reasons as network claim 14 since the recited apparatus would perform the claimed program steps.

Regarding claim 19. Sydon teaches a node in a network of a plurality of nodes, said node comprising:

at least one transmitter configured to transmit to a destination node in said plurality of nodes using an assigned modulation scheme during a timeslot assigned to the destination node (paragraphs 0017-0018, 0020, 0021, 0025).

Sydon does not explicitly teach establishing a different time slot for each node for reception of messages. In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

However, Sydon does teach communication between **two or more** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10

line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

2. Claims 1-13, 16-17, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sivakumar et al (2005/0018631 hereinafter Sivakumar) in view of Sydon et al (2002/0085520 hereinafter Sydon) further in view of Yuen et al (6,160,803 hereinafter Yuen).

Regarding claim 1. Sivakumar teaches a method of communicating among a plurality of nodes in a wireless network, comprising:

assigning a timeslot to each of the plurality of nodes in the wireless network, the timeslot being a time for a corresponding one of the plurality of nodes to receive

messages transmitted by other of the plurality of nodes; assigning a modulation scheme to the each of the plurality of nodes (title, abstract, paragraphs 0010, 0020, 0024 – 0037, 0038 – 0042) .

Sivakumar does not show: transmitting the messages to one destination node within the plurality of nodes from all of the other of the plurality of nodes; and receiving, at the one destination node, a message from the at least one of the other of the plurality of nodes. Sivakumar does not allow direct communication between slave nodes (see last two lines of paragraph 0020).

Sivakumar does teach in a bluetooth piconet environment.

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 - 19). Sydon further teaches communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units (paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

Sivakumar in view of Sydon do not explicitly show the timeslot being other than a receiving timeslot for each of said all of the other of the plurality of nodes

In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

The Examiner notes that Sydon does teach communication between **two or more** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal from all users**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **receiver**

<u>TDMA subsystem is what distinguished one user from another</u>, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 2. Sivakumar teaches the assigning comprises assigning one of a plurality of transmit spreading codes to each of the plurality of nodes (see Title, abstract and Bluetooth protocol used in paragraph 0020).

Yuen also teaches using spreading codes (see chip sequence generator in figure 2, col. 9 lines 12-16).

Regarding claim 3. Sivakumar teaches the assigning comprises assigning one of a plurality of hop sets to each of the plurality of nodes (see Frequency hopping spread spectrum in title, abstract and paragraphs 0001, 0003, 0010, 0020, 0024).

Regarding claim 4. Sydon teaches the assigning comprises assigning a unique transmit spreading code to each of the plurality of nodes (paragraphs 0018, 0021,0025).

Regarding claims 5-6. Sivakumar does not show communication between slave nodes (see last two lines of paragraph 0020).

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 -

19). Sydon further teaches direct communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units (paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

However, Sivakumar in view of Sydon do not explicitly show the timeslot being other than a receiving timeslot for each of said all of the other of the plurality of nodes

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA

data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **receiver TDMA subsystem is what distinguished one user from another**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 7. Sydon teaches orthogonal codes (paragraphs 0021, 0025). Yuen also teaches orthogonal codes (col. 2 lines 25-37, col. 4 lines 14-31).

Regarding claim 8. Sydon teaches direct sequence (title, abstract, 0018, 0021, 0025).

Regarding claim 9. Sivakumar teaches ACK messages used (paragraphs 0027, 0028, 0030, 0031, 0034).

Regarding claim 10. Sivakumar clearly shows hop sets and carrier frequencies (title, abstract, figures 1, 5 and 6) but does not teach communication between slave nodes (see last two lines of paragraph 0020).

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 - 19). Sydon further teaches direct communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units

(paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

However, Sivakumar in view of Sydon do not explicitly show the timeslot being other than a receiving timeslot for each of said all of the other of the plurality of nodes

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver</u>**

<u>TDMA subsystem is what distinguished one user from another</u>, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 11. Sivakumar teaches a network (title, abstract) comprising:

a plurality of nodes, each of the nodes having an assigned modulation scheme (see Title, abstract and Bluetooth protocol used in paragraph 0020) and a plurality of receivers configured to receive a plurality of messages during a timeslot assigned to the node (title, abstract, figures 1, 5 and 6, paragraphs 0010, 0020, 0024 – 0037, 0038 – 0042).

Sivakumar does not show a plurality of receivers configured to receive any messages transmitted from all other nodes in the plurality of nodes. Sivakumar does not allow direct communication between slave nodes (see last two lines of paragraph 0020).

Sivakumar does teach in a bluetooth piconet environment.

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 -

19). Sydon further teaches communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units (paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

Sivakumar in view of Sydon do not explicitly wherein said receiving timeslot assigned to the destination node is different from all other receiving timeslots, each assigned, respectively, to one of said all other nodes.

In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

The Examiner notes that Sydon does teach communication between **two or more** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 12. Sivakumar shows plurality of spread codes, carrier frequencies and plurality of hop sets (title, abstract, figures 1, 5, and 6).

Regarding claim 13. Sivakumar teaches (Bluetooth protocol --- paragraph 0020) having a plurality of spread codes, carrier frequencies, and hop sets (title, abstract, figures 1, 5, and 6).

Regarding claim 16. Sivakumar teaches receiving, by a node in a network during a TDMA timeslot assigned to the node for receiving messages transmitted (title, abstract, paragraphs 0010, 0020, 0024 – 0037, 0038 – 0042).

Sivakumar does not teach receiving any messages transmitted by all other nodes.

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 - 19). Sydon further teaches direct communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units (paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

Sivakumar in view of Sydon do not explicitly show wherein said receiving timeslot assigned to the node is other than a receiving timeslot for said each of said all other nodes.

In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

The Examiner notes that Sydon does teach communication between **two or more** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal from all users**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data

and the selecting the received TDMA data within a particular time slot by the **receiver TDMA subsystem is what distinguished one user from another**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 17. Sivakumar teaches a method for simultaneously receiving a plurality of messages in a wireless network node, the method comprising: receiving, by a node in a network during a TDMA timeslot assigned to the node for receiving messages transmitted (title, abstract, paragraphs 0010, 0020, 0024 – 0037, 0038 – 0042).

Sivakumar does not teach receiving any messages transmitted by all other nodes.

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 - 19). Sydon further teaches direct communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units (paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

Sivakumar in view of Sydon do not explicitly teach wherein the timeslot assigned to the node is other than a receiving timeslot for said each of said all other nodes.

In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

The Examiner notes that Sydon does teach communication between **two or more** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10

line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claims 20. Sivakumar in view of Sydon do not explicitly show same time slots used.

In other words, Applicants point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots **for receiving** messages from other nodes.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a

particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 21. Sivakumar in view of Sydon do not show the receiving TDMA time slot is different.

In other words, Applicants point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known

for using time slots for sending but not known for using TDMA time slots **for receiving** messages from other nodes.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 22. Sivakumar in view of Sydon do not explicitly show the timeslot is the same for certain of the plurality of nodes and is different for each of the plurality of nodes other than the certain nodes.

In other words, Applicants point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots **for receiving** messages from other nodes.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Regarding claim 23. Sivakumar teaches an ad hoc, wireless network (see Bluetooth in abstract, figures 1-6, paragraph 0020), a method of communication amongst said nodes comprising:
assigning a modulation scheme to said each of said plurality of nodes (title, abstract, paragraphs 0010, 0020, 0024 – 0037, 0038 – 0042).

Sivakumar does not show nodes capable of receiving messages from all other of said plurality of node (see last two lines in paragraph 0020).

Sydon also teaches master node (12 figures 1-3) communication with remote units (14, 16, 18, 20 and 22 figures 1-3) using Bluetooth protocol (paragraphs 0017 - 19). Sydon further teaches direct communication between remote units (paragraphs 0020 – 023) as well as communication between multiple groups of remote units (paragraphs 0024 –0026) by using two modulation schemes (see frequency hopping or spread spectrum, paragraphs 0017 – 0018, 0021, 0025).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use two modulation schemes as taught by Sydon into the teachings of Sivakumar in order to employ different modulation schemes to different connections or

channels within a wireless network thereby reducing interference while optimizing usage of available frequency spectrum as taught by Sydon (paragraphs 0006, 0007, 0018, 0021, 0025).

Sivakumar in view of Sydon do not explicitly teach the received timeslot being a different timeslot from all receiving timeslots assigned, respectively, to said all other of said plurality of nodes.

In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

The Examiner notes that Sydon does teach communication between **<u>two or more</u>** remote units (paragraphs 0020-0023) wherein the central unit may assign a specific hopping algorithm or hop sequence or, alternately, spreading codes that are orthogonal.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched

filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **receiver TDMA subsystem is what distinguished one user from another**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Sydon in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sivakumar et al (2005/0018631 hereinafter Sivakumar) in view of Abdesselem et al (2001/0022791 hereinafter Abdesselem) further in view of Yuen et al (6,160,803 hereinafter Yuen).

Regarding claim 18. Sivakumar teaches a method for communicating among a plurality of radios in a wireless network (title, abstract, figures 1-6), the method comprising:

using one of a plurality of transmit spreading codes to transmit a message from a radio to at least one other radios in a wireless network during a timeslot assigned to the at least one other nodes paragraphs 0010, 0020, 0024 – 0037, 0038 – 0042).

Sivakumar does not teach using very short bursts or pulses as defined as UWB (see Ultra-Wideband radio network defined at the top of page 21, paragraph 0081 of Applicants specifications).

Abdesselem also teaches a radio communication system that uses timeslots (Title, abstract, figures 1, 2, 3A, 3B, 4A and 4B). Abdesselem teaches using short burst to allow subscriber terminals to automatically set a frequency correction algorithm thereby resulting in faster synchronization to base stations (paragraphs 0001, 0013, 0019, 0021, 0035, 0037, 0042, 0047, 0056, 0058, 0059, 0062, 0064, 0065).

It would have been obvious for any one of ordinary skill in the art at the time of invention to use short burst as taught by Abdesselem into the teachings of Sivakumar in order to reduce the time necessary for a subscriber stations to synchronize to a cell as taught by Abdesselem (paragraphs 0064, 0065).

Sivakumar in view of Abdesselem do not explicitly show wherein the timeslot assigned to the one of the ultra-wide band radios is other than a receiving timeslot for each of said all other ultra-wide band radios.

In other words, Applicants amend and point to paragraph 0048 and figure 4 of the originally filed specification (see paper dated 1/26/2009) wherein conventional TDMA are known for using time slots for sending but not known for using TDMA time slots for receiving messages from other nodes.

Yuen also teaches spread spread-spectrum TDMA system (abstract). Yuen teaches using a **transmitter TDMA subsystem** for sending or gating data within a

particular time slot, set by the base station (col. 8 lines 60-66, col. 9 lines 52-55) wherein the transmitter subsystem is necessary for distinguishing data from different users (col. 9 lines 55-59, col. 17 lines 49-65), and by sending the data with the transmitter TDMA subsystem, will reduce the cost at the receiver (col. 9 line 64 – col. 10 line 4), since at the receiver, only one set of matched filters or correlators would be required for the **despreading signal <u>from all users</u>**, and different sets of matched filters or correlators are not required for each user. Yuen also teaches using a **receiver TDMA subsystem** (col. 12 lines 11-21) so the receiver can select the received TDMA data within a particular time slot, and outputs the received TDMA data as received data and the selecting the received TDMA data within a particular time slot by the **<u>receiver TDMA subsystem is what distinguished one user from another</u>**, since each user transmits TDMA data with a different time slot from the other users.

It would have been obvious for any one of ordinary skill in the art at the time the invention was made to use the transmitter TDMA subsystem and receiver TDMA subsystem as taught by Yuen into the teachings of Sivakumar in view of Abdesselem in order to allow each terminal the ability to despread signals from all other users which ultimately reduces cost as disclosed by Yuen.

Response to Arguments

4. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

---(2005/0002416) Belotserkovsky et al is considered pertinent for establishing a different time slot for each node **<u>for reception of TDMA messages</u>** (**see paragraph 0021** wherein a base unit may assign TDMA time slots in such a way that **<u>receiving mobile terminals may look for the packets in pre-defined locations</u>**) thereby saving power (see last three lines of paragraph 0018).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor, telephone number (571) 272-7509, who is available Monday-Thursday, 6:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost, can be reached at (571) 272-7023. The central facsimile phone number for this group is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (571) 272-2600, the 2600 Customer Service telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Centralized Delivery Policy: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the central fax number **(571-273-8300).**

/Barry W Taylor/
Primary Examiner, Art Unit 2617